REMARKS/ARGUMENTS

Claims 1, 3-9, and 13-25 are in the application. Claims 1, 8, 13, 20, and 24 have been amended. Claims 10 and 11 have been canceled, and Claims 2 and 12 had been previously canceled. No new matter has been added. The Applicant respectfully requests reconsideration and allowance of the application in view of the amendment and the following remarks.

Initially, the Applicant would like to express its gratitude toward the Examiner for taking the time to discuss the present application by telephone on February 23, 2009 and providing the Applicant with a courtesy copy of the interview summary by facsimile on February 23, 2009.

In the interview, the Examiner requested that the enclosed Declaration Under 37 CFR §1.132 along with a diagram on decomposition of zirconyl chloride ($ZrOCl_2$) without oxygen be submitted[1].

In addition, the Examiner indicated in the interview that the rejection of the claims based on Andolfatto would be overcomed by the submission of the enclosed Declaration Under 37 CFR §1.132. However, the Examiner did have an issue with enablement because the claim could cover a reaction in an argon (inert) atmosphere which, according to the Examiner, does not appear to result in the deposition of Zr metal. As such, the Examiner indicated to the Applicant that the claims should be limited to only a "reducing atmosphere" in order to overcome the enablement issue.

Although the Applicant agrees with the Examiner that the rejections based on Andolfatton would be overcomed by the enclosed Declaration Under 37 CFR §1.132, the Applicant respectfully disagrees for reasons as follows that the claims need to be limited to only a "reducing atmosphere."

That is, the Applicant would like to first note that the purposes of the diagram on decomposition of zirconyl chloride ($ZrOCl_2$) without oxygen is to show that it would not have

[1] In the enclosed diagram and for the sake of completeness, the declarant (and inventor), Mrs. Bacos, added a line corresponding to Zr gas such that Zr solid and Zr gas are represented by empty squares and full circles, respectively, because they are found on the abscissa axis (x-axis). The temperatures of the diagram are represented in Kelvin degrees. As can be derived in the diagram, like Zr solid, the line for Zr gas is also under the Avogadro limit which appears as a grey zone.

been obvious for a person skilled in the art to obtain a deposit of Zr metal. This is not in contradistinction with the teachings of this invention. As a matter of fact, according to the teaching of the present invention, zirconium metal is (or is limited to being) deposited simultaneously with the deposition of aluminium.

In fact, the core teaching of an embodiment of this invention, explained particularly in the second part of section [0044] of the present patent application, states:

> According to the invention the aluminium halide is replaced either wholly or in part by zirconium oxychloride. Through evaporating, the latter leads to the formation of a vapour rich in zirconium chloride which engages in an exchange reaction at the surface of the nickel-based superalloy substrate to form metallic zirconium and a halogen acid which is available to form an aluminium halide in the donor cement. The zirconium deposited at the surface of the substrate then diffuses into the forming β-NiAl coating to ultimately yield an intermetallic compound enriched with between 500 and 1000 ppm of zirconium.

As noted in the second part of section [0044], there is an exchange reaction at the surface of the nickel-based superalloy which allows an embodiment of the present invention to obtain the simultaneous deposition of zirconium and aluminium.

Although the mechanism is not entirely clear[2], it seems to the present inventive entity that there is a catalytic effect or the like due to the nickel in the superalloy. This is neither disclosed nor suggested by Andolfatto and Darolia as a whole because Andolfatto appears to only teach the use of $ZrOCl_2$ to form a deposition of oxides in the conditions already discussed.

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[2] That is, it is not required that the inventor understand or disclose the principle that make the invention work, as long as it does work. If the specification provides the information needed to make and use the invention, the patentee's theory as to why it works can be completely wrong. *See Process Control Corporation v.. Hydreclaim Corporation,* 190 F.3d 1350, 1359 (Fed. Cir. 1999) ("an otherwise valid patent covering a meritorious invention should not be struck down simply because of the patentee's misconceptions about scientific principles concerning the invention"); *In re Cortright,* 165 F.3d 1353, 1359 (Fed. Cir. 1999) ("'[I]i is not a requirement of patentability that an inventor correctly set forth or even know , how or why the invention works.'"); *Newman v. Quigg,* 877 F.2d 1575, 1581 (Fed. Cir. 1989).

As such, in view of the foregoing reasons and to expedite prosecution, the Applicant has amended Claims 1, 8, and 24 by replacing the term "metal substrate" to "nickel-based superalloy" as recited in prior Claim 10 to further clarify the subject matter being claimed.

In other words, the present claims are now directed toward the formation of a protective coating containing aluminum on the surface of a nickel-based superalloy, while maintaining the wordings of "reducing or inert atmosphere" as discussed and taught in the present application. See, e.g., sections [0036] and [0044] of the present application.

In view of the foregoing and the enclosed Declaration Under 37 CFR §1.132, the Applicant respectfully submits that Claims 1, 3-9, and 13-25 are now in condition for allowance. Reconsideration and withdrawal of the rejections are respectfully requested, and a timely Notice of Allowability is earnestly solicited. If there are any remaining issues that can be addressed over the telephone, the Examiner is encouraged to call the Applicant's attorney at the number listed below.

Respectfully submitted,
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